UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

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PRODUCTION OF ORIENTAL FRUIT MOTH PARASITES IN OUTDOOR CAGES

Experiments were conducted this season at the Bureau laboratory, at Moorestown, N. J., in the use of large outdoor cages for the mass propagation of fruit moth parasites. Although preliminary in nature, they indicate the possible application of this procedure in increasing stocks of parasites for liberation. This information is being made available at the present time in order that State workers may utilize the method of production, or some modification of it, in the development of plans for fruit moth parasite work.

The tests were made in a cage 124 feet long by 16 feet wide and 6 feet high, constructed over 30 peach trees in two rows, and divided by cross partitions into 8 compartments to permit the testing of several species at the same time. The cage was covered with No. 128 sheeting which was stretched over a substantial frame of wood and wire. All compartments except one contained 4 trees, spaced 8 feet apart. The trees were about 3 years old.

Experiments in the mass production of fruit moth parasites were continued through the season. In each test the parasites naturally present were first eliminated by removal of all infested terminals that appeared in early spring. A heavy twig infestation was then established by stocking the compartments with oriental fruit moth adults. As soon as wilted twigs became evident, parasites of the species to be tested were introduced. A few days later the infested twigs were picked, trimmed of all foliage, and the fruit moth and contained parasites reared to emergence in the insectary.

These tests proved that under conditions such as exist at Moorestown, N. J., where the field infestation is normally very heavily parasitized by Macrocentrus ancylivorus, it is a relatively simple matter to obtain a heavy infestation within such a cage without affecting surrounding trees, the indigenous M. ancylivorus can be readily excluded, and the desired species of parasite can be propagated in practically pure culture.

Tests with Bassus diversus, which were conducted under the most favorable conditions, gave very encouraging results. Those with other species were delayed until rearing stock became available later in the season and the trees were consequently in less favorable condition. However, the tests indicated that Orgilus longiceps, Dioctes molestae, M. ancylivorus, Glypta rufiscutellaris, Eubadizon extensor and M. thoracicus can also be reared by this method. A summary of the results obtained is as follows:

Species tested	Average number twigs available per female	Number of parasites reared per tree in best test	Sex ratio (percent females)
Bassus diversus	22	209.3	99.6
Orgilus longiceps	15	38.3	37.2
Dioctes molestae	10	68.5	35.8
Macrocentrus ancyliverus	8	25.3	52.5
Glypta rufiscutellaris	5	14.3	66.7
Rubadizon extensor and Macrocentrus thoracicus	9	49.0	19.2

While these experiments were only of a preliminary nature and should be followed up more thoroughly another season, the results obtained indicate that certainly B. diversus and possibly the other species can be reared in this manner. They suggest the possibility of utilizing this method or an adaptation of it for increasing stocks of parasites for liberation.

It is understood that a somewhat similar procedure has been used previously by workers in New York State for propagating M. ancyliverus from the strawberry leaf roller.

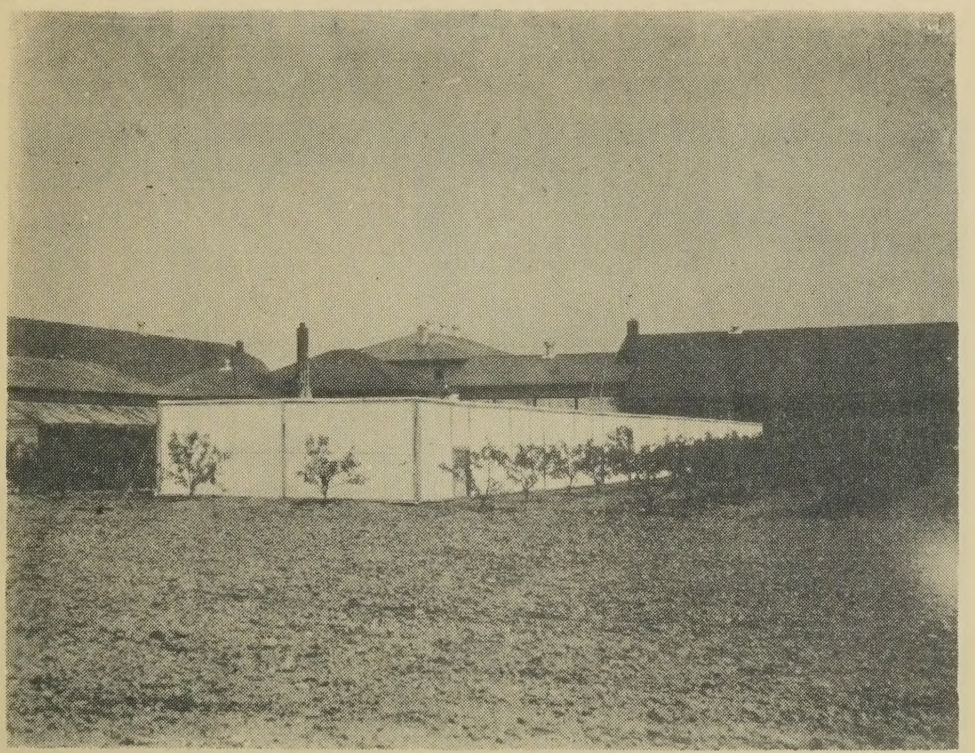


Fig. 1.--Exterior of cage from ground.

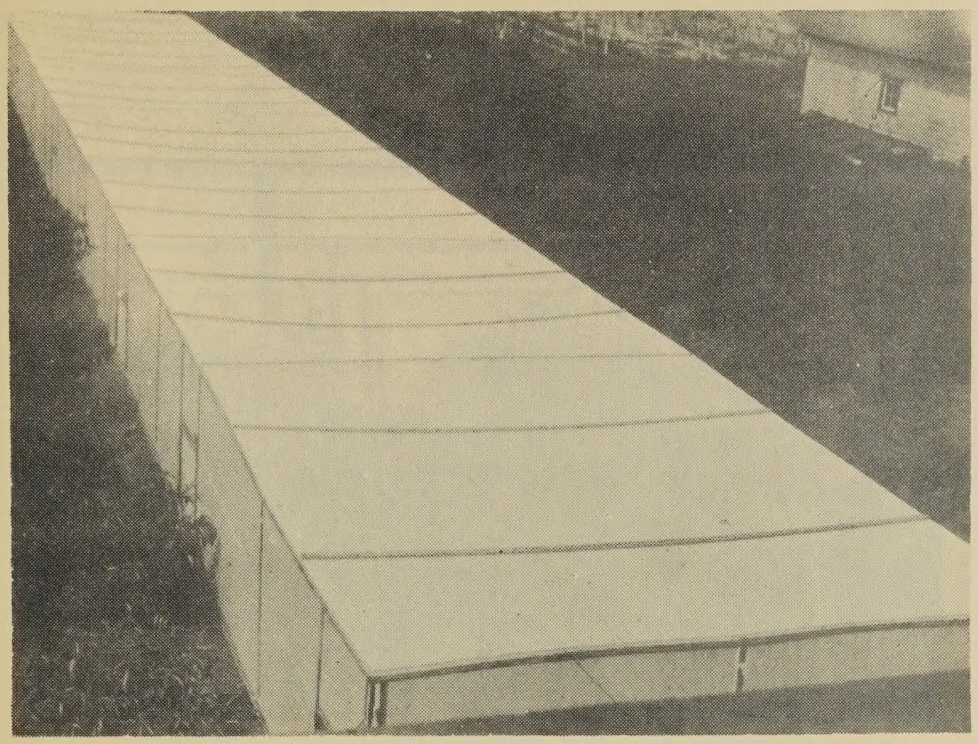


Fig. 2.--Exterior of cage from above, showing cross pieces used to hold cloth top in place.

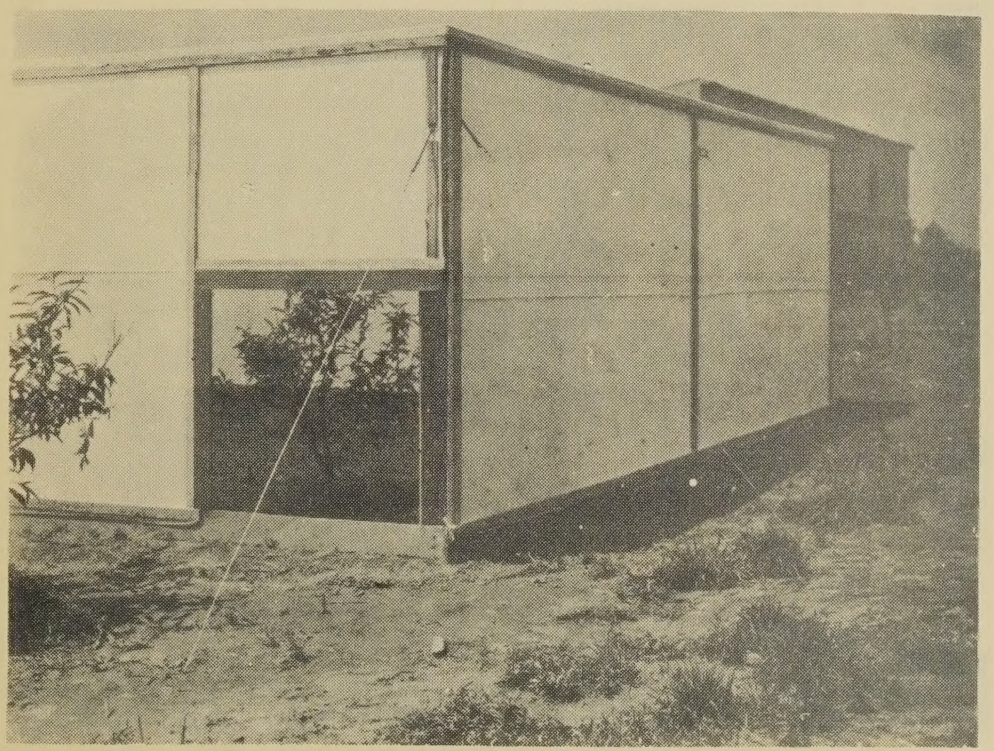
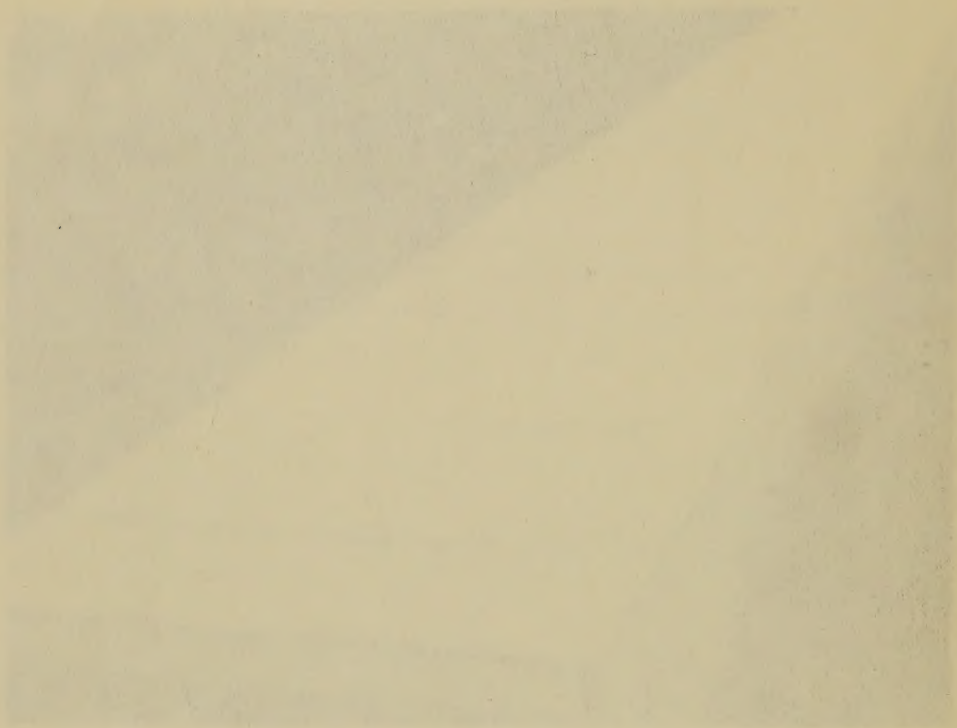
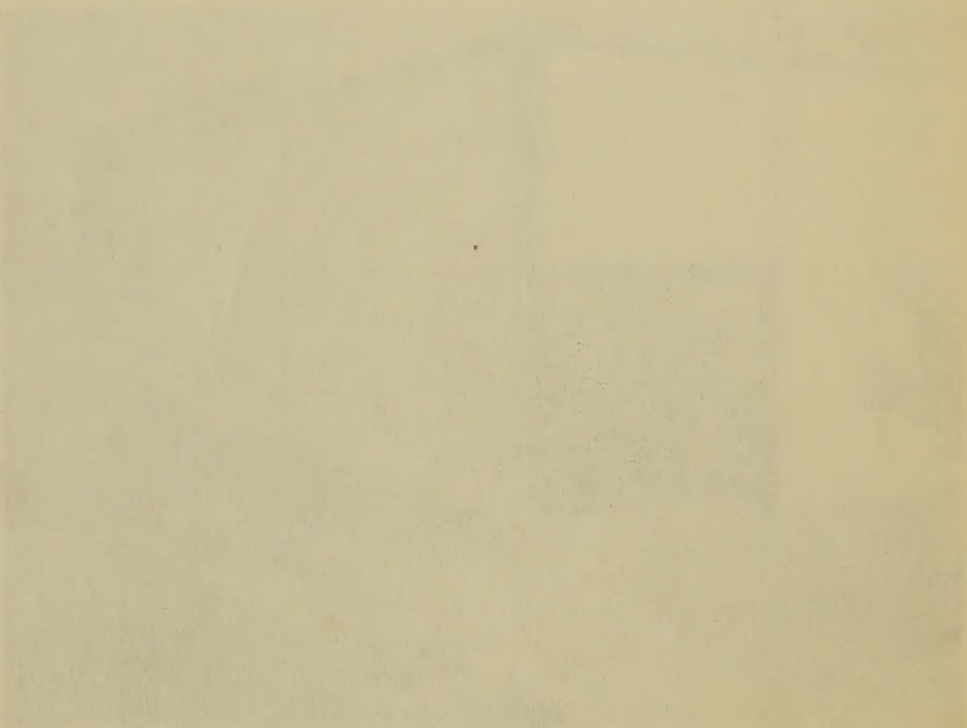


Fig. 3.--End view of cage, showing entrance to one compartment and method of guying framework.





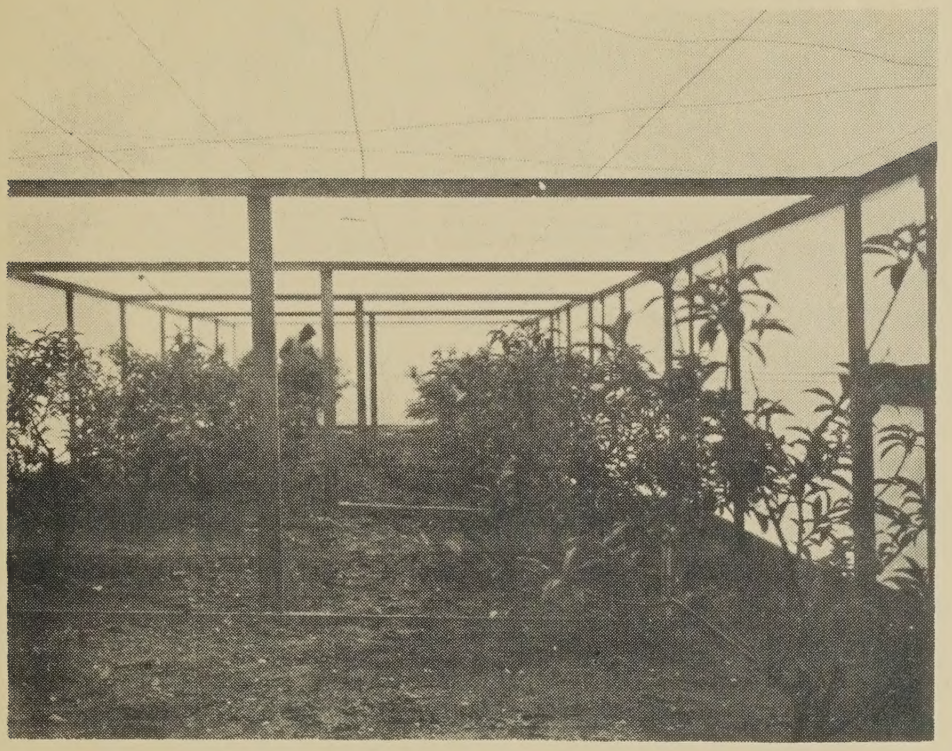


Fig. 4.--Interior of cage before partitioning compartments.

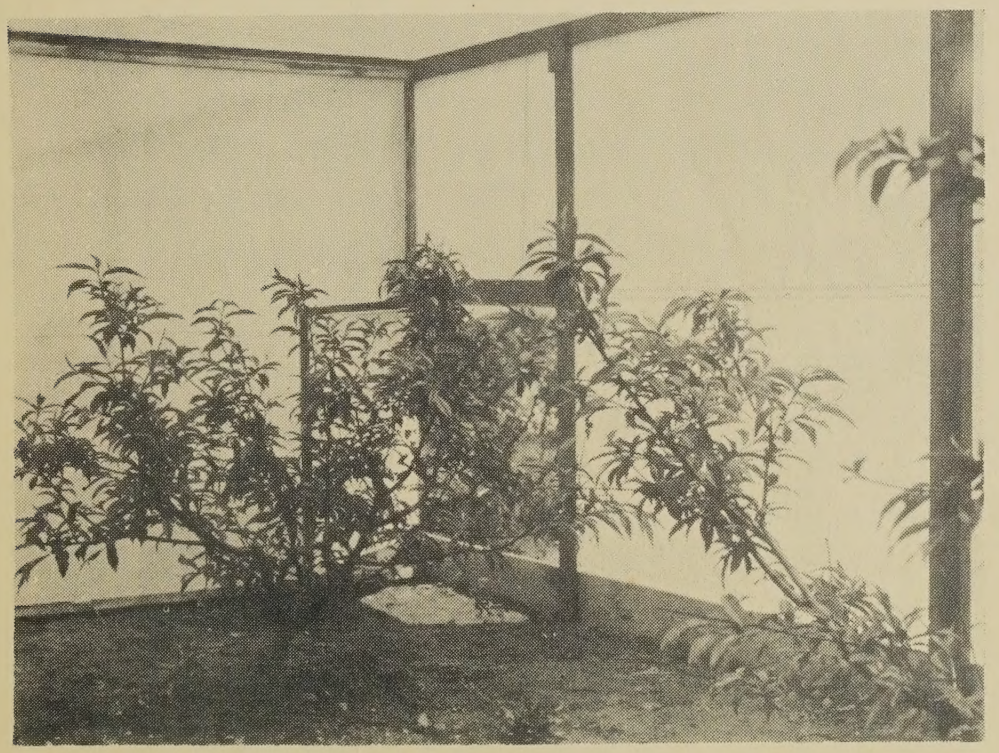


Fig. 5.--Interior corner of one compartment, showing entrance.